PARADISE VIEW HOMEOWNERS ASSOCIATION (PWS# 1090097)
SOURCE WATER ASSESSMENT REPORT

November 14, 2002

State of Idaho
Department of Environmental Quality

SOURCE WATER ASSESSMENT FOR PARADISE VIEW HOMEOWNERS ASSN

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Idaho Department of Environmental Quality is completing these assessments for all Idaho public drinking water systems. The assessment for your drinking water source is based on well construction characteristics; site specific sensitivity factors associated with the aquifer the water is drawn from; a land use inventory inside the well recharge zone; and water quality history. For non-community transient water systems like Paradise View Homeowners Association, recharge zones are generally delineated as a 1000-foot fixed radius around the wells.

This report, *Source Water Assessment for Paradise View Homeowners Association* describes factors used to assess the well's susceptibility to contamination. This analysis relies on information from the well log; an inventory of land use, well site characteristics and potential contaminant sites identified through a Geographic Information System database search; and information from the public water system file. The ground water susceptibility analysis worksheet for Paradise View Homeowners Association is attached near the end of this report.

Taken into account with local knowledge and concerns, this assessment should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should <u>not</u> be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Well Construction. The Paradise View Homeowners Association well provides drinking water to 19 homes in a rural area overlooking the northeast shore of Lake Pend Oreille in Bonner County, Idaho.

Two springs and an infiltration gallery flowing off of Mount Eagan supplied the Paradise View Homeowners Association's water when the housing development was relatively new. Multiple positive coliform bacteria test results from these sources prompted development of a ground water source.

The public drinking water well for Paradise View Homeowner's Association was drilled in November of 1993 to a depth of 305 feet, and came on line in early 1994. The well log for this water system was located at the Idaho Department of Water Resources.

The six-inch steel casing and bentonite clay surface seal extend 18 feet below ground surface, terminating just above an unbroken shale formation. When a well acquires water from an aquifer that is overlain by a consolidated formation that is above the water table, the unperforated casing must extend into the consolidated material. (IDAPA 37-03-09). A four-inch PVC plastic liner trends from 10 to 305 feet below ground surface, with perforations starting at 10 feet. The static water level is located at 30 feet.

Well Site Characteristics. Soils, and rock in the well recharge zone are generally moderately well drained to well drained. This is evidenced by the brittle, broken layers of Pre-Cambrian Pritchard Shale that was encountered when the well was under construction in 1993. The highest water production is found in a zone of heavily fractured shale from 280 to 290 feet below ground that produces approximately 20 gallons per minute. The well is located outside of the 100-year flood plain.

Potential Contaminant Inventory. The most serious potential source of contaminant to this well is surface water infiltration from a small stream located 66 feet to the northeast. A larger creek is located 189 feet to the north. Due to the proximity of the streams and the installation of perforations in the well liner just 10 feet below ground, a hydrologic well source evaluation done on June 3, 2002 concluded that a microscopic particulate analysis needed to be performed to determine whether the well is surface water influenced. Paradise View completed its first microscopic particulate analysis (MPA) on October 21, 2002. Results are not available yet

Water Quality History. Paradise View Homeowners Association samples its water monthly for coliform bacteria, and yearly for nitrates. The system has had numerous positive bacterial tests in the last ten years. The most recent occurrence, in October of this year, was due to a contaminated faucet at the sampling site.

The previous positive result occurred on 11/13/01 with a broken distribution line being suspected. Other positives occurred on 12/8/1998, and 7/7/1998. Positive total coliform results from 1998 were most likely from bacteria growing on a wooden structure situated above the 11,000-gallon reservoir. A concrete cap has since been placed above it with subsequent testing results being negative until 2001.

No nitrates have been detected in the well in annual testing. No volatile organic chemicals or synthetic organic chemicals were detected during comprehensive baseline testing in 1994.

Susceptibility to Contamination. The Paradise View Homeowner's well is at moderate risk relative to inorganic chemical, synthetic and volatile organic chemical contaminants. Because of the repeated positive test results for coliform bacteria the microbial contamination risk is ranked high. The susceptibility analysis worksheet for your well on page 6 this report shows how your well was scored. Formulas used to compute the final susceptibility scores are at the bottom of the worksheet.

Source Water Protection. This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a water source receives, protection is always important. Whether the water source is currently located in a wilderness area, or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect available water supply resources.

When the Paradise View Homeowner's Association water systems was inspected in July 1997 the system was required to:

- Submit 'as constructed' plans for the well and improvements to the water system made since 1993.
- Fit the well casing with a watertight vented well cap with the open end of the vent facing downward, screened and at least 18-inches above ground surface.
- Screen the outfall of the reservoir overflow and seal the reservoir access to preclude access by insects, birds and rodents.

The survey reports also recommend installing backflow protection on the discharge line from the well.

When the well site was visited for the MPA test in October 2002 the well casing had not been extended 18-inches above the ground. The well cap was pushed down close to the grass, and was loose. Neglecting the repairs outlined in the Sanitary Survey may be contributing to the microbial contamination the system has experienced.

Water protection ideas can be found on the Internet, and on the Idaho DEQ website. A voluntary plan that every system should employ is development of an emergency response plan. There is a simple, fill-in-the-blanks form available on the DEQ website (www.deq.state.id.us/water/water1.htm) to guide systems through the emergency planning process.

Paradise View Homeowners should also investigate ground water protection programs like Home*A*Syst. These programs are designed to help well owners assess everyday activities for their potential impact on drinking water quality. Topics include septic tank management, petroleum product storage, handling and storing lawn and household chemicals and similar activities. Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term.

Assistance. Public water suppliers and users may call the following IDEQ offices with questions about this assessment and to request help with drinking water protection planning.

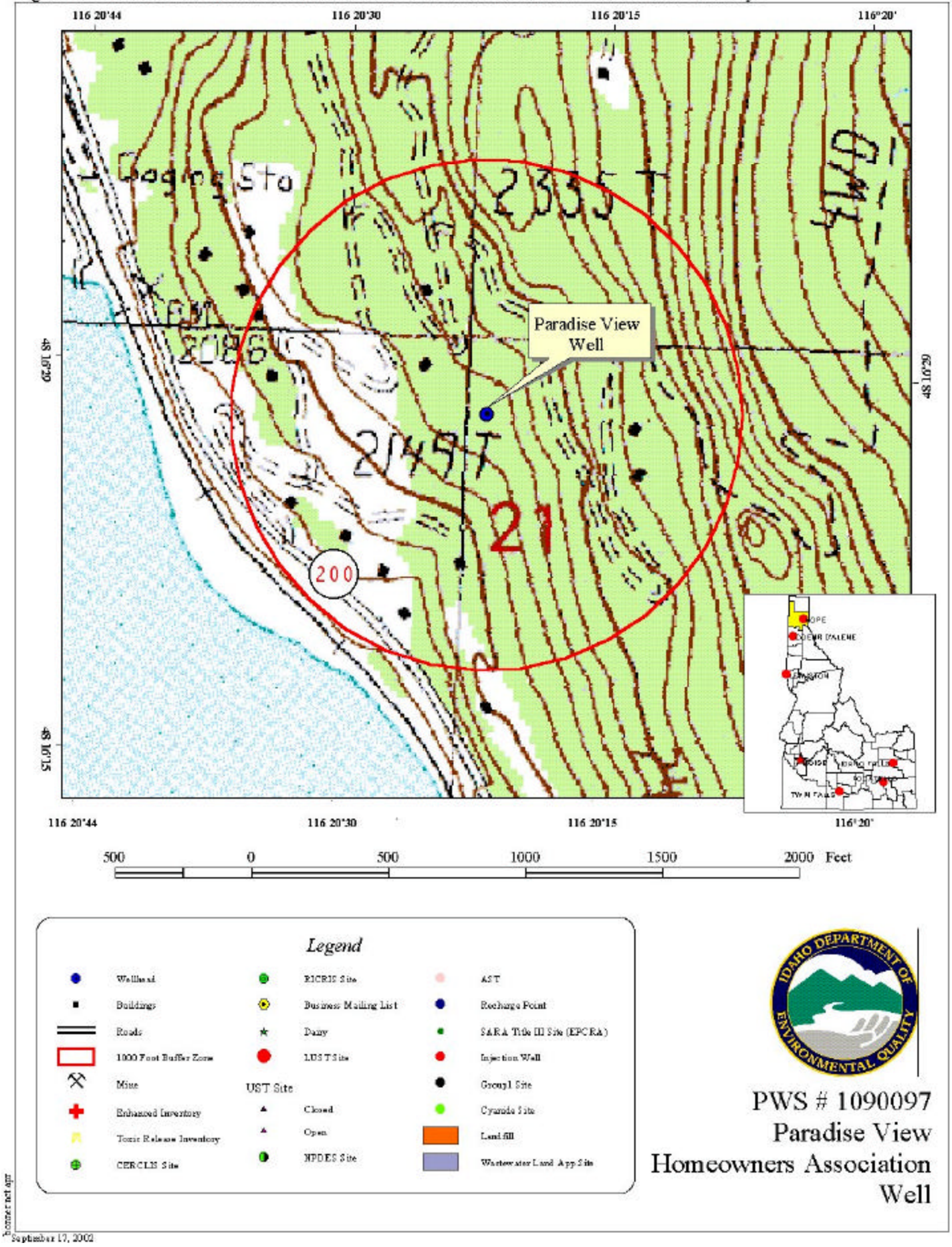
Coeur d'Alene Regional DEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

For assistance in developing source water protection strategies please contact Tony Davis at the Coeur d'Alene Regional DEQ office at 208 769-1422.

DEQ website: http://www.deq.state.id.us

Figure 1. Paradise View Homeowners Association Delineation and Potential Contaminant Inventory.



Ground Water Susceptibility

Public Water System Name : **PARADISE VIEW HOMEOWNERS ASSN** Well# : **WELL #1**

Public Water System Number : **1090097** 11/6/02 8:05:41 AM

1. System Construction		SCORE			
Drill Date	11/19/93				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES 1997				
Well meets IDWR construction standards	NO	1			
Wellhead and surface seal maintained	NO	1			
Casing and annular seal extend to low permeability unit	NO	2			
Highest production 100 feet below static water level	YES	0			
Well head protected from surface runoff.	NO	1			
Total System Construction Score		**5**			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	NO	2			
Vadose zone composed of gravel, fractured rock or unknown	YES	1			
Depth to first water > 300 feet	NO	1			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		**6**			
		IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use - ZONE 1A		Score	Score	Score	Score
Land Use Zone 1A	WOODLAND	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Zone 1A	YES. Surface water	NO	NO	NO	YES
Total Potential Contaminant Source/Land Use Score - Zone 1A		**0**	**0**	**0**	**0**
Potential Contaminant / Land Use - ZONE 1B					
Contaminant sources present (Number of Sources)	YES	0	0	0	1
(Score = # Sources X 2) 8 Points Maximum		0	0	0	2
Sources of Class II or III leacheable contaminants or Microbials	NO	0	0	0	
4 Points Maximum		0	0	0	
Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0	0
Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B		**0**	**0**	**0**	**2**
Cumulative Potential Contaminant / Land Use Score		**0**	**0**	**0**	**2**
4. Final Susceptibility Source Score		**11**	**11**	**11**	**12**
5. Final Well Ranking		Moderate	Moderate	Moderate	***High**

*High because of repeated positive total coliform bacteria tests.

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

0 - 5 Low Susceptibility
6 - 12 Moderate Susceptibility
> 13 High Susceptibility

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ? Superfund? is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.